We claim:

1. A method for determining a floating ambiguity value corresponding to a carrier-phase measurement obtained by a user of a satellite positioning system based on signals received from one of a plurality of satellites, the method comprising:

determining a position of the user;

computing a theoretical range from the user to the satellite based on the position of the user;

computing an initial ambiguity value based on the theoretical range and the carrier-phase measurement; and

determining the floating ambiguity value using the initial ambiguity value.

2. The method of claim 1 wherein the user is stationary and determining the position of the user comprises obtaining floating ambiguity values associated with a prior operation of the user.

3. The method of claim 1 wherein the position of the user is determined by using a real-time kinematic system including the user, a reference station and a radio link between the user and the reference station.

4. The method of claim 3 wherein determining the position of the user comprises:

resolving integer ambiguities associated with a set of differential carrier-phase measurements between the user and the reference station; and

computing the position of the user using the resolved integer ambiguities.

5. The method of claim 3 wherein determining the position of the user comprises:

determining a position of the user relative to the reference station;

receiving information regarding a position of the reference station; and

determining an absolute position of the user based on position of the user relative to the reference station and the information regarding the position of the reference station.

6. The method of claim 1, wherein the carrier-phase measurement is refraction-corrected.

7. The method of claim 1 wherein determining the floating ambiguity value comprises:

adjusting a carrier-phase measurement at each of a series of measurement epochs using the initial ambiguity value; and

computing the floating ambiguity value using the adjusted carrier-phase measurements.

8. The method of claim 7 wherein the floating ambiguity value is computed by taking an expanding average of an offset between the adjusted carrier-phase measurement and a corresponding code measurement at each of the series of measurement epochs.

9. The method of claim 8 wherein the floating ambiguity value is computed by treating the floating ambiguity value as if a large number of offset values were used in computing it.

10. The method of claim 8, wherein the carrier-phase measurements and the code measurements are refraction-corrected.

11. The method of claim 7 wherein the floating ambiguity value is determined as an ambiguity state in a Kalman filter process, and wherein the floating ambiguity value is computed by setting a variance of the ambiguity state to a small value.

12. A method for positioning or navigating an object associated with both a local reference receiver and a wide-area satellite positioning system, comprising:

determining a first position of the object based on information received from the local reference receiver;

determining floating ambiguity values associated with carrier-phase measurements obtained at the object using the first position of the object; and

determining a second position of the object based on information received from the wide-area satellite positioning system and the floating ambiguity values.

13. The method of claim 12, wherein the first position is relative to the local reference station and the second position is an absolute position, the method further comprising:

receiving a position of the local reference station from the wide-area satellite positioning system;

transforming the first position to an absolute position using the position of the local reference receiver before determining the floating ambiguity values; and

transforming the second position to a position relative to the local reference receiver using the position of the local reference station.

14. The method of claim 12 wherein determining the floating ambiguity values comprises computing initial floating ambiguity values using the first position.

15. The method of claim 14 wherein computing initial floating ambiguity values comprises computing theoretical ranges between the object and a plurality of satellites.

16. The method of claim 14 wherein determining the floating ambiguity values comprises adjusting the carrier-phase measurements with the initial floating ambiguity values.

17. The method of claim 15 wherein determining the floating ambiguity values comprises smoothing code measurements with the adjusted carrier-phase measurements.

18. A computer readable medium storing therein computer readable program instructions that, when executed by a processor, cause the process to perform a method for determining a floating ambiguity value corresponding to a carrier-phase measurement obtained by a user of a satellite positioning system based on signals received from one of a plurality of satellites, the program instructions comprising:

instructions for determining a position of the user;

instructions for computing a theoretical range from the user to the satellite based on the position of the user;

instructions for computing an initial ambiguity value based on the theoretical range and the carrier-phase measurement; and

instructions for determining the floating ambiguity value using the initial ambiguity value.

19. The computer readable medium of claim 18 wherein the position of the user is determined by using a real-time kinematic system comprising the user, a reference station and a radio link between the user and the reference station.

20. The computer readable medium of claim 18 wherein the instructions for determining the floating ambiguity value comprises:

instructions for adjusting a carrier-phase measurement at each of a series of measurement epochs with the initial ambiguity value; and

instructions for using a small value of gain to adjust the floating ambiguity value until a predetermined accuracy of the floating ambiguity value is reached.